

## HOW REPTILES LIVE

They Grow Fat Beneath the Heat of the Tropical Sun.

### SPIDERS, SNAKES AND TOADS

Horned and Tiger Rattlesnakes and Toads of All Descriptions That Spit Blood From Their Eyes.

From the San Francisco Chronicle.

From the standpoint of a zoologist there is probably no class of animals so characteristic of the desert as the reptiles. True, there are numbers of birds and mammals found all over the arid wastes of sand, but these either migrate or spend most of their time underground, as is the case with most of the smaller mammals. The birds choose the sheltered canyons, where, perhaps, a few drops of water will ooze out between the rocks, or even venture out into the great sun-baked plains, seeking the shelter of the bushes and stunted trees which here and there manage to eke out an existence. The smaller mammals are almost all nocturnal in their habits and only venture out after nightfall, when the earth begins to cool a little, and, with the exception of, perhaps, a few coyotes or the little desert fox, one may travel for hundreds of miles through the deserts without seeing a single animal except the reptiles and insects. But they are there, and lots of them, too. The burning sands and the copper skies seem to have no torture for them. They are everywhere. At nearly every step one seems to awaken a fresh lizard from his rest under a bush or beside a stone, and away he goes, scurrying along over the sand, perhaps his long tail dragging in the sand, but more frequently elevated high in the air. In fact, this uplifted tail often looks like a little gray twig moving rapidly along the ground, but always retaining its upright position. And these lizards can run, too. In a twinkling they are gone, and then it is only the practiced eye that can see them, for when they lie at rest their dull gray color makes it almost impossible to see them.

But these are not all. Often from the side of the road, disturbed by the passing traveler, a horned rattlesnake or sidewinder will move sluggishly away, but ever keeping up an incessant rattle. Again, big, sluggish lizards are found, nearly always a dull gray above, but beneath or around the head iridescent in the most gorgeous colors. And, too, the big rattler of the desert canyons, though a trifle more sluggish than the sidewinder, seems ever ready to call his attention to his bright colors by sounding the terrible rattle which strikes fear to the heart of any animal, no matter how large or how small. The tiger rattler, which in the desert regions of America, and is comparatively rare, being found only in the canyons of the barren regions which traverse the desert in all directions.

I remember seeing 19 in a single canyon of the Argus range of mountains in Inyo county. One I found on a ledge of rock directly behind the fire which we had built for cooking supper.

The tiger rattler, however, though very dangerous and sometimes growing to four feet in length, cannot compare in viciousness with the little sidewinder or horned rattlesnake. The sidewinder prefers the open desert lying quietly beside some desert bush, waiting for its prey. It gets the name sidewinder from the fact that, in moving along the ground, instead of pursuing a straight course it has besides the forward movement a sidewise, crablike motion. It is much less sluggish than the other rattlers, perhaps on account of its small size, as it seldom exceeds a foot and a half in length. It is lighter colored than the other rattlers, and directly over the eyes are protuberances, which give it the name horned rattler. It seems to be the most dreaded of all snakes by the desert traveler, probably on account of its being so hard to see owing to its small size and quick movements. In fact, it is about the only reptile which the desert prospector really dreads.

One of the most plentiful of the lizards which live on the desert is the blue-spotted lizard. It is about eight inches long and of a light ashen color on the back, but down each side runs a row of black spots, extending out on the tail. It receives its name from the two sulphur-blue patches on each side of the abdomen, and the little blue spot on the chin. One variety is blue nearly all over, giving out beautiful iridescent metallic colors. The peculiarity of this species is that when frightened it seldom keeps to the ground, but runs to the nearest bush of any size, or even a tree, and climbing up into the branches, waits until danger is past. Very often these little lizards may be found in the yucca trees, probably waiting for some of the insects which often come for the nectar in the yucca blossoms. This species is very much like the blue-spotted lizard which is found on the west side of the Sierra.

Probably the most characteristic of the lizards of the lower desert regions of California is the long-tailed or griliron-tailed lizard. This species is found nearly everywhere in the lower parts of the desert, and never fails to attract the attention of the traveler by its exceedingly rapid movements and its very strange habit of carrying its tail curved up over its back. In fact, the tail is the largest part of the animal, being longer than the head and body together. The movements of this little gray lizard are so quick as to make it hard for the eye to follow, and when it shoots off along the sand, with its tail high in air, it looks almost as if a stick, standing on end, were scurrying away.

There is, living in the mountainous parts of the Mojave desert, a very strange lizard, which often reaches a length of over a foot, and which is nearly as wide as one's hand and of a uniform dark slate color, or even black, while the tail is spotted with white and often uniformly white. At a distance this species looks like a Gila monster, and many people unacquainted with the latter have supposed them to be the same, and I think it is due to this mistake that many people believe this Gila monster an inhabitant of California. But there is no really authentic account of the monster being found in our state. Professor Baird states in his Pacific railroad reports on the authority of Kennedy and Moulhausen, that it has been found along the Mojave river, but this must be a mistake. The peculiarity of this species is that when frightened it seldom keeps to the ground, but the chuck walla, as the black lizard above described is called by the Indians, is almost entirely

ly vegetable. Several specimens which were examined contained in their stomachs specimens of a little lotus, an ephedra and a few bits of the gray desert tree, *daleda fremontii*. The Indians eat a great many of them and I, for one, can testify that, although very repulsive to look at, if one has not had fresh meat for three or four months a nice fat chuck walla is quite palatable, if properly cooked. The meat is very white and tastes much like frog's legs.

There is a very pretty and withal a very strange lizard found in several localities in the Mojave desert which has been named by scientists *dipsosaurus dorsalis*, on account of its near resemblance to the ancient saurians, which inhabited the earth many hundreds of years ago. Until the last few years it was not known that this strange lizard lived farther north than lower California, but recent explorations have proved that it inhabits the desert regions as far north as the Panamint mountains, in Inyo county. It has a thick, finely scaled neck, and heavy legs, which support a rather clumsy body, and a long, tapering tail. The body is beautifully mottled, while the entire length of the tail is covered with transverse bars. The under surface of the body is whitish, while blotches and lines of red on the shoulders and sides make it a very pretty lizard. The tail is longer than the head and body together, the total length over all measuring nearly fifteen inches in an adult male.

There are at least three species of horned toads living in California, one on each side of the Sierra, but the one that is found on the west, and which is so well known to every boy in California, has been found so near the eastern borders of the Sierra foothills as to be almost included as one of the reptiles inhabiting the desert. The third species never gets into the Sierra. In general appearance the desert species is very similar to the one found in the inland valleys, but is of a lighter color, and the arrangement of the scales is somewhat different. The color may vary, however, from a dull white to a vivid brick red.

There has been considerable discussion of late years among scientists as to the truth of the statement that horned toads when provoked will squirt blood from their eyes, and most naturalists had a tendency to deride the statement, but observations in late years seem to prove that the horned toad is able to display this wonderful evidence of his ill feeling toward his tormentor. In 1891 Vernon Bailey, the famous collector and naturalist, while doing work in Kern county for Dr. Merriam of the department of ornithology in Washington, has optical evidence of the truth of this matter, which he himself had so long doubted. He wrote to the chief of the department in regard to the matter as follows:

Dear Sir: I caught a horned toad today that very much surprised Dr. Fisher and myself by squirting blood from its eyes. It was on smooth ground and not in the brush or weeds. I caught it with my hand, and just got my fingers on its tail as it ran. On taking it in my hand a little jet of blood spurted out from one eye a distance of fifteen inches and splattered on my shoulder. Turning it over to examine the eye another stream spurted from the other eye. This he did four or five times, from both eyes, until my hand, clothed and gun, were sprinkled over with fine drops of bright red blood. I put it in a bag and carried it to camp, where about four hours later I showed it to Dr. Fisher, when it spurted three more streams from its eyes. One of the same species that I caught July 2 evidently did the same, as I found its head covered with blood when I caught it, but supposed it was injured in the weeds. It seems so strange that I send the horned toad to you alive.

Vernon Bailey.

#### Fast Railway Trains.

From the Ladies' Home Journal.  
At 60 miles an hour the resistance of a train is four times as great as it is at 30 miles—that is, the fuel must be four times as great in the one case as it is in the other. But at 60 miles an hour this fuel must be exerted for a distance in half the time that it is at 30 miles, so that the amount of power exerted and steam generated in a given period of time must be eight times as great as the faster speed. This means that the capacity of the boiler, cylinders and the other parts must be greater with a corresponding addition to the weight of the machine. Obviously, therefore, if the weight per wheel, on account of the limit of weight that the rails will carry, is limited, we soon reach a point when the driving wheels and other parts cannot be further enlarged, and then we reach the maximum of speed.

The nice adjustment necessary of the various parts of these immense engines may be indicated by some figures as to the work performed by these parts. The locomotive is worked at high speed. Take a passenger engine on any of the big railroads. At 60 miles an hour a driving wheel five and a half feet in diameter revolves five times every second; now, the reciprocating parts of each cylinder, including one piston, piston rod, crosshead and connecting rod, weighing about 650 pounds, must move back and forth a distance equal to the stroke, usually two feet, every time the wheel revolves, or in a fifth of a second. It starts from a state of rest at the end of each stroke of the piston and must acquire a velocity of 32 feet per second in one-twentieth of a second and must be brought to a state of rest in the same period of time. A piston 18 inches in diameter has an area of 254 square inches. Steam of 150 pounds pressure per square inch would, therefore, exert a force on the piston equal to 38,175 pounds. This force is applied alternately on each side of the piston 10 times in a second.

#### Louisiana's Oil Pumping Plant.

The sulphur plant near Lake Charles, La., owned by the Standard Oil company, has now a pumping plant which extracts 260 tons per day.

#### A POINTER.

In making arrangements for your trip to the Puget Sound or Pacific coast points, don't allow yourself to be deceived as to the shortest, quickest, and most desirable route. The Northern Pacific is the only direct line to Washington, Oregon, and all Pacific coast points. This line is also the only one operating a double daily passenger service between Butte and Portland. Close connections are made at the latter point with San Francisco and all California points.

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Portland . . . . . 8 hours  
Ticket office, 22 E. Broadway, Butte, Montana.

#### DOES NOT WANT A FIGHT.

Spanish Newspaper Acknowledges the Superiority of the United States.

From the Nuevo Regimen.  
It is hard to understand how public opinion can be so easily deceived. There are many here who believe that it would be a simple thing for us to defeat the United States in a war. They believe that country is only a republic of merchants. They believe that she cannot fight with European powers. What a mistake! America was not a republic yet when she first defeated England. Thirty years later she declared war with England again, and compelled her to sign an honorable peace, notwithstanding she saw the English burning the capitol at Washington. When, after half a century of peace, her inhabitants were divided about the slavery question and she had to fight with her own sons, the world was amazed at the size of her armies, at her battles and at her formidable engines of war. It was then that she produced the Monitor. On the 8th and 9th of March, 1862, in Hampton roads, in sight of Fortress Monroe, she gave to the world the spectacle of a naval combat such as had never been witnessed before between two battle ships, the like of which, also, had never been seen before—namely, the Merrimac and the Monitor of Ericsson.

Against England America is always powerful. In 1846 she compelled England to give up a part of Oregon. In 1871 England had to indemnify her for the damage done by the Alabama and other cruisers built in British ports for the enemies of the republic. Recently she has compelled England to consent to her interference in the quarrel about the boundaries of Guiana and Venezuela. On the American continent how often has she acted energetically without Europe's opposition! In 1845 she annexed Texas to her territory. In 1845 she compelled England to give to Honduras the islands of Ruatan. From 1845 to 1867 she openly opposed the establishment of a monarchy in Mexico. She did not recognize Maximilian even as a constituted power. She did not attempt to preserve neutrality. She favored Juarez and when the emperor was imprisoned at Queretaro she declined to listen to the requests of France and Austria and interfere to save his life.

Excepting England there is no nation in Europe which dares oppose to oppose in any way the United States at present more powerful than ever. When she fought against England the first time she had not 4,000,000 of inhabitants. The second time she had no more than 8,000,000. To-day she has 70,000,000. Then she had nothing; now she has a strong naval force, and she can put in arms at a moment's notice millions of soldiers. Her regular army is small in time of peace—25,000—but they reach to hundreds of thousands in the organized militia of the several states.

The United States is now a wealthy nation. Industrious, enterprising, active, without fear of any undertaking, no matter how reckless and impossible it looks. In a war against Europe she would display a hundredfold the strength she exhibited in the war of secession. She could hardly be defeated. Never shall we advise Spain to declare war upon the United States. Terms of peaceful arrangement are first.

#### Growing House Plants.

To make house plants grow Professor Boosof says: Saturate the earth around them every day with coffee left over at breakfast. Five or six drops of ammonia to every pint of water once a week will make them flourish. To make bulbous flowers bloom fill a flower pot half full of quick lime and the remainder with good earth; plant bulbs and keep the earth damp. The heat of the lime, tempered by passing through the earth, will cause the bulb to send forth shoots to blossom. The colors of red and violet flowers are rendered extremely brilliant by covering the earth in their pots with about one-half inch of pulverized charcoal. Charcoal does not affect yellow flowers at all in this way.

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20 hours to Kansas City, nine hours to Omaha; correspondingly short time to all Missouri river points.

Seven hours to St. Paul, Minneapolis, and all Minnesota, Wisconsin and Northern Iowa points.

Ticket office, 23 E. Broadway, Butte, Mont.

#### TIME IS MONEY.

The Northern Pacific is the only line operating a double daily passenger service between Butte and St. Paul. The new schedule, which went into effect on April 12th, makes this line the fastest by many hours to St. Paul, Chicago, New York, Boston, and all eastern points.

Note actual time consumed to the following points, and compare it with the time made by other lines out of Butte:

St. Paul . . . . . 1 day 15 hours  
Chicago . . . . . 2 days 5 hours  
New York . . . . . 3 days 11 hours  
Boston . . . . . 3 days 13 hours  
No change of cars to St. Paul. Only one change to Chicago and two to New York or Boston.

Ticket office, 23 E. Broadway, Butte, Montana.

#### SEALED PROPOSALS.

For the erection and completion of the first building of the state school of mines in Butte city, will be received on or before the 25th day of June, 10 o'clock, 1896, at the office of John Gillie, secretary, Butte city, Montana. Plans and specifications are on file and can be seen at the office of the secretary or at the office of the supervising architect, John C. Paulsen, Helena, Mont. All proposals must be submitted on blanks which are furnished at the above offices. All proposals must be accompanied by a certified check of 5 per cent. of the bid submitted or they will receive no consideration. Payment will be made in warrants as per section 1691 of the political codes, act approved March 7, 1895. The right is reserved to reject any or all bids. F. E. Sargeant, president; John Gillie, secretary.  
Butte, May 23, 1896.

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